

a receiver (4) having a first input (31) and a second input (32) coupled respectively to the at least two antenna signals (23a, 23b);

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C1
a phase-shifter (33) having its input coupled to said second input (32) of said receiver (4), whereby the received antenna output signal (23b) at said second input (32) has the same phase at the output of said phase shifter (33) as the antenna signal (23a) in the first receiver input (31);

a summation circuit (35) for adding up the two received antenna signals (23a, 23b) in a phase-coincident manner, to produce at its output, an added-up signal (37), to be supplied to the frequency demodulator of the FM receiver;

a phase controller (34), having its input coupled to the output signal (37) of said summation circuit (35), and having its output coupled to said phase shifter (33), said controller (34) having a low pass filter to limit its speed of shifting of said phase shifter (33);

an interference detector (18) having its input coupled to the output (37) of said summation circuit (35) for rapidly detecting a reception disturbance in said added-up signal (37) caused by a swing in the frequency of the received FM signals, so as to produce an interference detection signal (38) at the output of said detector (18); and

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a controllable logic switch (11) having its output coupled to the antenna switches (5a, 5b...) of antenna system (21), and its input coupled to said interference detector (18) so that when a received signal (23a, 23b) that is different in terms of diversity, is supplied to at least one of said two inputs (31, 32) of said receiver (4) from each of the different switching positions of the antenna switches (5a, 5b...) detector (18) will actuate said logic switch (11) and thus switch antenna switches (5a, 5b...) to another switching position, during the presence of a reception disturbance so that the output signal (37) fed to the FM demodulator is free of reception interference.

Please add claims 21 - 25 as follows:

C2
-- 21. An antenna diversity system for receiving frequency-modulated (FM) radio signals having a multi antenna system (21) with antenna switches (5a, 5b...) coupled to antennas ($A_1, A_2 \dots A_N$) for producing at least two antenna output signals (23a, 23b), comprising:

a means for shifting (33) the phase of at least one antenna output signal and summing (35) the appropriately phased antenna output signals resulting in an added-up signal; and

a detector for detecting (18) reception disturbances in said added-up signal and actuating the antenna switches (5a, 5b...) in response to a reception disturbance so as to select such a

switching position in which the output signal (37) for the FM receiver is free of interference.

22. The antenna diversity system of claim 21 further comprising a means (34) for limiting the speed of said means for shifting (33) the phase of at least one antenna output signal.

23. The antenna diversity system of claim 21 wherein said detector comprises a means for switching (11) said antenna switches (5a, 5b...) through a logic switch that actuates said antenna switches (5a, 5b...) during a reception disturbance.

24. The antenna diversity system of claim 21 wherein said means for shifting (33) the phase of at least one antenna output signal are characterized in that said antenna output signals resulting in said added-up signal are identically phased.

25. The antenna diversity system of claim 21 wherein said means for shifting (33) the phase of at least one antenna output signal comprises a phase control means to adjust the phase of said means for shifting (33) the phase for a maximum signal-to-interference ratio in the added-up signal (37).--